CHAPTER 7

LIST OF EFFECTIVE TEMPORARY REVISIONS

FOLLOWING IS A COMPLETE LISTING OF ALL ACTIVE TEMPORARY REVISIONS (TR'S). TR'S NOT LISTED SHOULD BE REMOVED. THE ATA NUMBER, CONFIG CODE AND PAGE NUMBER IDENTIFIES THE PAGE PRECEDING THE TR.

TR NUMBER	ATA NUMBER	CONFIG CODE	PAGE NUMBER	TR DATE

NONE

CHAPTER 7

LIFTING AND SHORING

LIST OF EFFECTIVE PAGES

	CHAPTER/ SECTION	PAGE	DATE	CONFIG CODE
	List of Effective Pages	1/2	Jun 15/94	
R	Table of Contents	1/2	Jun 15/94	
	7-00-00	1/2	Sep 15/73	
	7-10-00	1/2	Mar 15/73	
	7-11-00	201	Jul 15/84	
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	7-11-00	203	Jul 15/84	
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CHAPTER 7

LIFTING AND SHORING

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	JACKING Description and Operation	7-10-00	1	ALL
	WING AND FUSELAGE JACKING Maintenance Practices	7-11-00	201	ALL
	AXLE JACKING Maintenance Practices	7-12-00	201	ALL
R	DAMAGED AIRCRAFT RECOVERY	7-20-00		
	TOWING AND WINCHING Maintenance Practices	7-28-00	201	ALL

LIFTING AND SHORING - DESCRIPTION AND OPERATION

1. General

The nose and main landing gear contain integral jack pads located on and below each axle, midway between each set of wheels. The type of jack required for nose or main gear jacking varies with purpose and tire condition. With one or both tires normally inflated on any axle, conventional axle jacks of adequate capacity, lift, and body dimensions are satisfactory. Certain flat tire conditions require the use of a cantilever type jack.

Three jack points are provided on the primary structure for jacking the entire airplane. A fuselage jack point is located aft of the nose gear wheelwell at fuselage station 443.5, 72.5 inches to the right of the fuselage centerline. The other two jack points are located, one at each wing, outboard of the main landing gear and in line with FS 1321.8 and 338.4 inches left and right of fuselage centerline. The jack points provide receptacles for the attachment of removable jack adapters. For specific jacking information refer to 7-10-00 or 7-12-00 as appropriate.

In some instances pneumatic bags may be the only possible means of lifting the airplane. If the airplane has landed on soft terrain or has made a gear-up landing, the fuselage may be in contact with the ground and the use of conventional jacks would not be practical. Instructions are provided for lifting the airplane from this attitude by use of pneumatic bags. The instructions should be augmented with operating instructions furnished by the manufacturer of the pneumatic bags and related equipment.

Shoring the aircraft can be accomplished by using contour boards that conform to the lower surface of the wing and fuselage at specified locations.

JACKING - DESCRIPTION AND OPERATION

1. General

R Jacking the L-1011 can be accomplished by using aircraft jacks
R at the nose and main gear axle jack points, or at the jack
R points on the wings and the forward fuselage. The airplane may
R also be lifted with low-profile recovery jacks, or with
R pneumatic bags when the use of conventional jacks becomes
R impractical. For specific jacking information, refer to 7-11-00
R or 7-12-00, as appropriate.

WING AND FUSELAGE JACKING - MAINTENANCE PRACTICES

1. General

The aircraft is jacked at the wing and fuselage jacking points for gear retraction tests, main and nose landing gear maintenance, and aircraft leveling or weighing (Ref. Fig. 201).

2. Equipment and Materials

Landing Gear Downlock Safety Pins, PN 1302300-101, no equivalent

Chocks, manufactured by Brooks and Perkins, Inc., or equivalent

Static ground cable, common to all airport facilities

Towing Lockout Pin, PN 1302788-101, or equivalent

Hydraulic Jacks (100-ton) (90,702 kg), capacity Model 7925, Malabar Mfg Co., or equivalent

Hydraulic Jack (30-ton) (27,210 kg), capacity Model 733B, Malabar Mfg Co., or equivalent

Service Interphones, PN TC-287/20043-1, ISC/Telephonics Corp., or equivalent

Plumb Bob Kit, PN 177B, L.S. Starrett Co., or equivalent

Aircraft Jacking Pad Adapter Set, PN STC 90517-17, Spec Tool Co., or equivalent

MLG Shock Strut Lock Assy, PN 1504972-923-MST, or equivalent

NLG Shock Strut Lock Assy, PN B708-101, or equivalent

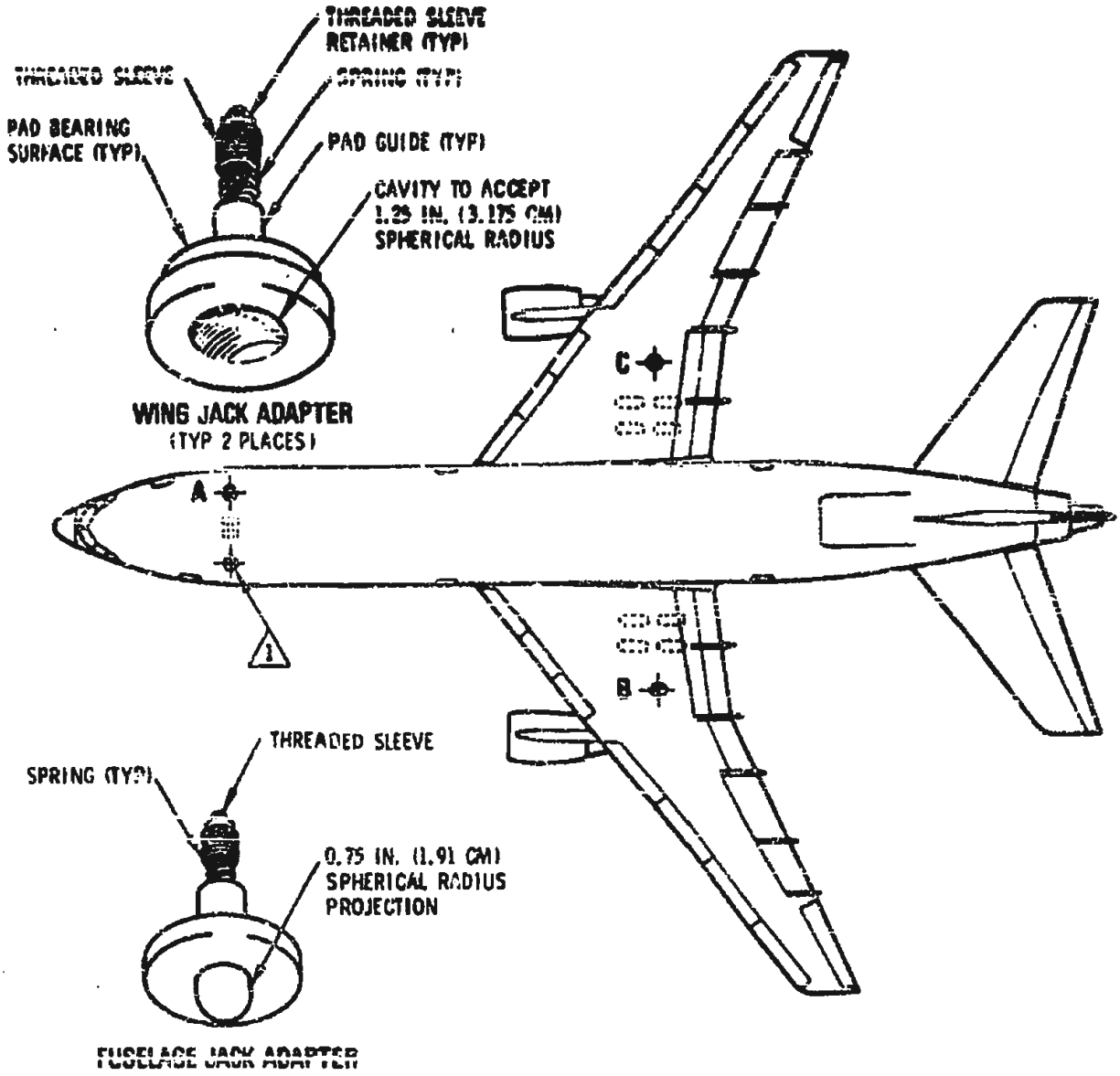
RAT, Ground Safety Bar, PN 1304565

R Tri-Wing Driver Bit (Ref. GAITEL 7-11-10) or equivalent

Hydraulic Fluid, Lockheed Spec C-34-1224, or equivalent

3. Referenced Procedures

8-11-00	Plumb Bob Leveling - Maintenance Practices
9-11-00	Normal Towing Conditions - Maintenance Practices



WING AND FUSELAGE

CODE	LOCATION	F.S.	B.L.	MAX AIRCRAFT GROSS WEIGHT	
				340,000 (LB)	154,195 (KG)
		IN.	IN.	MAX LOAD (LB)	MAX LOAD (KG)
A	FWD FUSELAGE	443.5	72.5	55,670	25,252
B	LEFT WING	1321.8	338.4	158,390	71,846
C	RIGHT WING	1321.8	338.4	152,050	68,970

NOTE

1 LH FITTING TO SUSTAIN EMERGENCY 15,000 LB (6,804 KG) JACKING OR BALLAST LOAD ONLY - EMERGENCY JACK FITTING CANNOT BE INSTALLED ON RH SIDE

M1-35104-07-013

R R Wing and Fuselage Jacking Points and Loads
Figure 201

	10-10-00	Parking - Maintenance Practices
	12-24-01	MLG Lubrication - Servicing
R	20-00-01	Tri-Wing Fasteners - Removal and Installation
	32-21-02	NLG Shock Strut Assembly - Removal and Installation

4. Wing and Fuselage Jacking

A. Raising Entire Aircraft

CAUTION: DO NOT JACK AIRCRAFT IF WIND EXCEEDS 30 KNOTS.

DO NOT JACK AIRCRAFT IF GROSS WEIGHT EXCEEDS 340,000 POUNDS (154,195 kg). DO NOT EXCEED ALLOWABLE LOADS AT JACKING POINTS (REF. FIG. 201).

NOTE: Empty weight of aircraft can be obtained from aircraft records.

(1) Head aircraft into wind if aircraft is to be jacked in an exposed area.

(2) Connect static ground cables to the ground terminals on
R the lower fuselage, forward of the main landing gear
R (Ref. 10-10-00).

R (3) Remove wing jack pad adapter plugs (Ref. 20-00-01) and
R fuselage access panel 118ER.

(4) Verify that all landing gear downlock safety pins are
R installed (Ref. 10-10-00).

CAUTION: IF NLG STEERING IS ACTIVATED WHILE NLG STRUT IS FULLY EXTENDED, A POTENTIAL CENTERING CAM DAMAGE SITUATION IS PRESENT UNLESS THE STEERING LOCKOUT PIN IS INSTALLED OR THE STEERING CONTROL LINK IS DISCONNECTED.

R (5) Check that nosewheel steering lockout pin is installed
R (Ref. 9-11-00) or that steering control link is disconnected.

(6) Perform the following air/ground sensing system safety precautions:

(a) Install RAT ground safety bar.

(b) On pilots overhead circuit breaker panel CB1, open and tag circuit breakers ENVIR CONTROL SYSTEM

MANUAL CABIN PRESS FWD (1) and AFT (H2), AIR OVBD (J14), and RAT AUTO DEPLOY (L3).

R (c) On pilots overhead FCES (Flight Control Electronic
R System) control panel, unlatch DLC/AUTO SPLR NO. 1 and NO. 2 switchlight and tag.

(d) On Flight Engineer/Second Officers overhead circuit breaker panel CB2, open and tag circuit breaker BAT CHG INTLK (L6).

CAUTION: DO NOT PERFORM RETRACTION TESTS UNLESS SHOCK STRUTS ARE FULLY EXTENDED.

SHOCK STRUT LOCKS ARE NOT STRESSED FOR COMBINED LANDING GEAR WEIGHT AND PRESSURIZED STRUT LOADS. SHOCK STRUTS MUST BE DEFLATED IF SHOCK STRUT LOCKS ARE TO BE INSTALLED.

(7) If shock strut locks are being installed, deflate shock struts prior to jacking.

WARNING: DEFLATE GEAR SHOCK STRUT WHEN AIRCRAFT IS BEING JACKED FOR SHOCK STRUT SEAL EXCHANGE OR REPLACEMENT.

(8) Install wing and fuselage jack pad adapter (Ref. Fig. 202).

(9) Position jacks under each wing adapter pad and right forward fuselage adapter pad (Ref. Fig. 202 and 203).

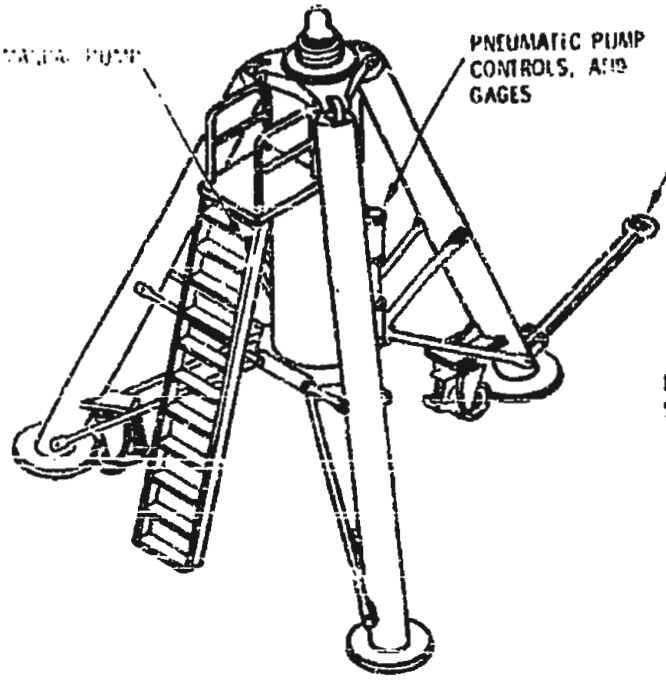
(10) Remove all unnecessary workstands, maintenance platforms, ladders, and other service items from area.

(11) Each primary jacking point must be manned, and if a central control is used, it too must be manned.

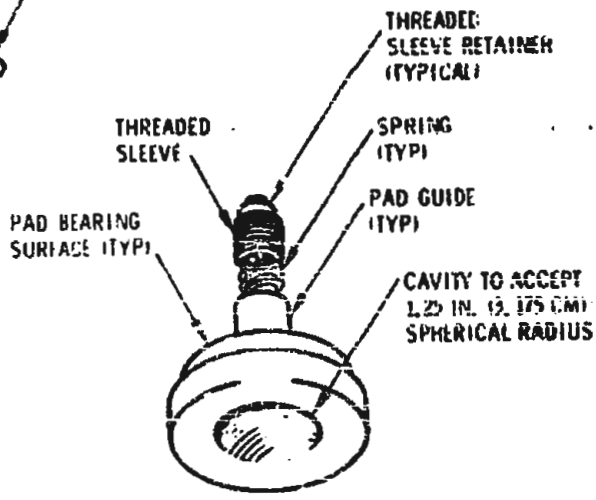
(12) Check that jacking coordinator has interphone communication with each jacking station, plumb bob station, and control console, if used.

(13) Engage each jacking point with jack pad adapter, and establish equal weight distribution on each jacking point.

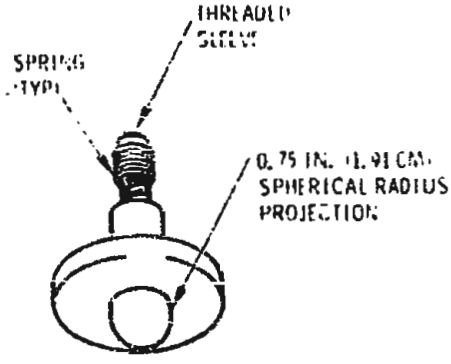
CAUTION: DO NOT JACK A SINGLE WING JACK SO THAT THERE IS A DIFFERENTIAL IN LEVEL BETWEEN THE TWO WING JACKS OF MORE THAN ONE DEGREE.



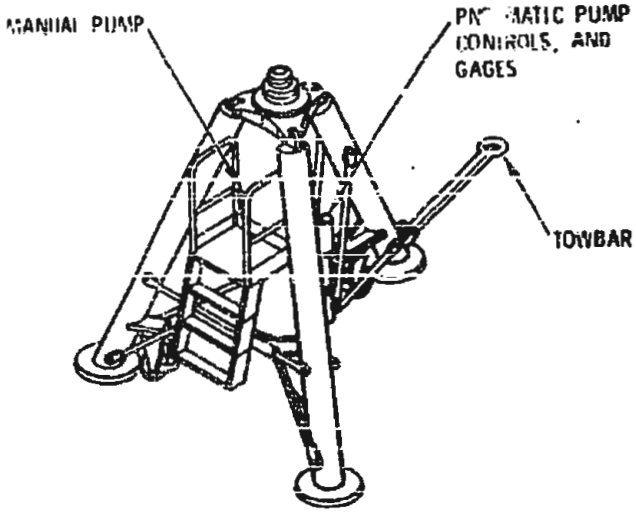
WING JACK


THREADED SLEEVE RETAINER (TYPICAL)
THREADED SLEEVE
SPRING (TYP)
PAD GUIDE (TYP)
PAD BEARING SURFACE (TYP)
CAVITY TO ACCEPT 1.25 IN. (3.175 CM) SPHERICAL RADIUS

WING JACK ADAPTER



FUSELAGE JACK ADAPTER



FORWARD FUSELAGE JACK

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R
R Wing and Fuselage Jacks and Jack Adapters
Figure 202

EFFECTIVITY: ALL

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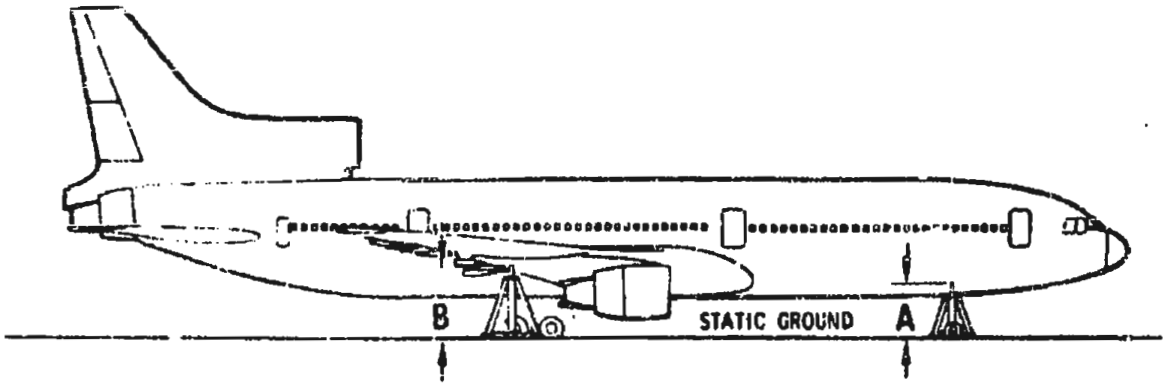


FUSELAGE AND WING JACK HEIGHTS AND TIRE CLEARANCES (1) (4)

CONDITION	50 x 20-20 TYPE VIII TIRES	
	DIMENSION A FUSELAGE (IN.) (2)	DIMENSION B WING (IN.) (2)
TIRES AND STRUTS NORMALLY INFLATED (STATIC HEIGHT)	112.6	151.5
DEFLATED STRUTS AND TIRES	103.5	(3) 141.3/138.4
MINIMUM JACK HEIGHT REQUIRED FOR 2-INCH GROUND CLEARANCE	132.1	181.5
MAXIMUM JACK EXTENSION REQUIRED FROM STATIC	19.5	30.0
MINIMUM JACK HEIGHT REQUIRED FOR GEAR SWING	136.1	185.5
MAXIMUM JACK EXTENSION REQUIRED FROM STATIC	23.5	34.0
JACK HEIGHT REQUIRED TO LEVEL AIRCRAFT FOR GEAR SWING	146.6	185.5
MAXIMUM JACK EXTENSION REQUIRED FROM STATIC	34.0	34.0

NOTE

(1) THESE FIGURES ARE BASED ON MAXIMUM TAXI WEIGHT 432,000 POUNDS (195,918 KG)

(2) THE DIMENSIONS GIVEN ABOVE ARE APPROXIMATE AND WILL VARY WITH THE TIRE TYPE AND CONDITION

(3) NEAR SIDE DEFLATED STRUT AND TIRE, FAR SIDE STATIC

(4) HANGAR FLOOR AND RAMP PAVEMENT TO BE 12 INCH THICK, 3000 PSI CONCRETE IN JACK FOOTPAD BEARING AREA WHERE LOADS WILL BE AS HIGH AS 500 PSI

M1-0104-07-005

R Fuselage and Wing Jack Heights and Tire Clearances
R Figure 203

R NOTE: Plumb bob and leveling grid must be used to
R maintain aircraft level while jacking (Ref. 8-11-00).

(14) Verify that wheel chocks are removed and that parking brake is released.

CAUTION: WHEN JACKING MAINTAIN RAM LOCKOUTS WITHIN ONE-HALF INCH (1.25 cm) OF JACK SHOULDERS.

C (15) On direction from jacking coordinator, simultaneously
C and evenly raise wing and forward fuselage jacks,
C maintaining aircraft level attitude within one degree
C until the tires are a minimum of 2 inches (5 cm) off
C the ground. If landing gear retraction is to be
C accomplished jack to a minimum tire clearance of 6
C inches from ground. Upon completion of jacking
C procedure, adjust jack ram lockouts against jack
C shoulders to prevent accidental retraction.

B. Lowering Entire Aircraft

(1) Apply light coating of clean hydraulic fluid to exposed piston area of all landing gear struts. Verify that all landing gear downlock safety pins are installed (Ref. 10-10-00).

CAUTION: DO NOT LOWER AIRCRAFT UNTIL ALL OBSTRUCTIONS ARE REMOVED FROM AREA.

VERIFY THAT LANDING GEAR CONTROL LEVER IS IN DOWN POSITION.

(2) Raise ram locknut on all jacks until distance from bottom of nut to top of ram cylinder on each jack is approximately 2 inches (5 cm).

CAUTION: JACKING COORDINATOR MUST CONTINUOUSLY CHECK WITH PLUMB BOB STATION TO DETERMINE THAT AIRCRAFT IS LEVEL. DO NOT JACK A SINGLE WING JACK SO THAT THERE IS A DIFFERENTIAL IN LEVEL BETWEEN THE TWO WING JACKS OF MORE THAN ONE DEGREE.

(3) On direction from jacking coordinator, retract wing and forward fuselage jacks simultaneously and evenly, while maintaining level attitude within one degree. Lower aircraft slowly.

NOTE: Avoid binding of nose and main gear struts if strut locks were not installed.

(4) Keep raising ram locknuts so that they remain within one-half inch (1.25 cm) of jack shoulder at all times.

(5) Continue to lower wing and fuselage jacks until aircraft is supported by main and nose landing gears.

(6) Depress all jack rams and screw in jack extensions to clear aircraft structure.

(7) Remove all jacks to clear aircraft; remove jack pad adapters and install wing jack pad adapter plugs (Ref. 20-00-01) and fuselage access panel 118ER.

(8) If deflated prior to jacking, inflate landing gear shock struts with clean dry air or nitrogen in accordance with servicing placard in wheel well (Ref. 12-24-01).

(9) Remove static ground cables from fuselage ground studs.

CAUTION: BE SURE ALL ARTIFICIAL TARGETS ARE REMOVED FROM AIR/GROUND SENSORS.

(10) Remove RAT ground safety bar as applicable.

(11) Remove tags and close circuit breakers opened in Step 4A(6).

(12) Remove tag and latch DLC/AUTO SPLR NO. 1 and NO. 2 switchlight.

5. Nose Jacking

A. Raising Nose

CAUTION: DO NOT EXCEED ALLOWABLE LOADS AT JACKING POINT (REF. FIG. 201).

DO NOT JACK AIRCRAFT IF WIND EXCEEDS 30 KNOTS.

R AIRCRAFT MUST BE IN JACKING CONFIGURATION (BOTH
R WING ENGINES INSTALLED) AND CENTER OF GRAVITY MUST
R BE FORWARD OF FS 1245 PRIOR TO JACKING AIRCRAFT AT
R NOSE GEAR ONLY.

(1) Head aircraft into wind if aircraft is to be jacked in an exposed area.

(2) Connect static ground cables to the ground terminals on the main landing gear trucks (Ref. 10-10-00).

(3) Check that all landing gear downlock safety pins are installed (Ref. 10-10-00).

(4) Check that nosewheel steering lockout pin is installed (Ref. 9-11-00).

(5) Remove fuselage access panel 118ER.

(6) Install fuselage jack pad adapter (Ref. Fig. 202).

(7) Perform the following air/ground sensing system safety precautions:

(a) Install RAT ground safety bar.

(b) On pilots overhead circuit breaker panel CB1, open and tag ENVIR CONTROL SYSTEM MANUAL CABIN PRESS FWD (H1) and AFT (H2), and RAT AUTO DEPLOY (L3) circuit breakers.

CAUTION: DO NOT PERFORM RETRACTION TESTS UNLESS SHOCK STRUTS ARE FULLY EXTENDED.

THE SHOCK STRUT LOCK IS NOT STRESSED FOR COMBINED LANDING GEAR WEIGHT AND PRESSURIZED STRUT LOADS. SHOCK STRUTS MUST BE DEFLATED IF SHOCK STRUT LOCK IS TO BE INSTALLED.

(8) If shock strut lock is being installed, deflate shock strut pror to jacking.

WARNING: DEFLATE NOSE GEAR STRUT WHEN AIRCRAFT IS BEING JACKED FOR SHOCK STRUT SEAL EXCHANGE OR REPLACEMENT.

(9) Position jack under forward fuselage jack pad adapter (Ref. Fig. 204). Extend jack until ram engages jack pad adapter.

CAUTION: DO NOT EXCEED FORWARD FUSELAGE JACKING POINT ALLOWABLE LOAD.

(10) Extend jack while keeping ram locknut within one-half inch (1.25 cm) of jack shoulder until desired aircraft height is reached.

(11) Set jack ram locknut against jack shoulder.

B. Lowering Nose

(1) Check that all landing gear downlock safety pins are installed (Ref. 10-10-00).

JACK POINT	MAXIMUM JACK RETRACT HEIGHT (INCHES)	MINIMUM JACK EXTEND HEIGHT (INCHES)	JACK RAM LIFT (INCHES)	JACK CAPACITY (TONS)	JACK FOOTPRINT RADIUS (INCHES)	JACK TYPE
WING	132	220	72 PLUS 16.0 IN. SCREW EXTENSION	100	72.5 (MAX) 56 (MIN).	(1) TRIPOD
FUSELAGE	87 NOT TO EXCEED 98 INCHES	171	72 PLUS 12.0 IN. SCREW EXTENSION	30	52 ± 2	(2) TRIPOD
MAIN LANDING GEAR	10	22.5	9 PLUS 3.5 IN. SCREW EXTENSION	60	---	(3) AXLE JACK (NORMAL CONDITIONS)
	5	23	18	60	---	(4) CANTILEVER AXLE JACK (FLAT TIRES)
NOSE LANDING GEAR	10	22.5	9 PLUS 3.5 IN. SCREW EXTENSION	60	---	(3) AXLE JACK (NORMAL CONDITIONS)
	2.5	24	21.5	40	--	(5)(6) CANTILEVER AXLE JACK (FLAT TIRES)

NOTE

ALL JACKS MUST BE EQUIPPED WITH LOAD OR PRESS GAUGES

(1) MALABAR MFG CO. MODEL NUMBER 792B, OR EQUIVALENT
(2) MALABAR MFG CO. MODEL NUMBER 7333, OR EQUIVALENT
(3) MALABAR MFG CO. MODEL NUMBER 842, OR EQUIVALENT
(4) MALABAR MFG CO. MODEL NUMBER 946, OR EQUIVALENT
(5) REGENT JACK MFG CO. MODEL NUMBER 5967, OR EQUIVALENT
(6) SANCOR/COLUMBUS MODEL NUMBER 4008, OR EQUIVALENT

M1-0108-07-007

Jack Specification Data
Figure 204

(2) Check that nose gear steering lockout pin is installed.

CAUTION: DO NOT LOWER AIRCRAFT UNTIL ALL OBSTRUCTIONS ARE REMOVED FROM AREA. VERIFY THAT LANDING GEAR CONTROL LEVER IS IN DOWN POSITION.

(3) Retract fuselage jack until aircraft weight is supported by nose gear.

(4) Depress jack ram and screw in extension to clear aircraft structure.

(5) Remove jack to clear aircraft.

(6) Remove jack pad adapter and install fuselage access panel 118ER.

(7) Remove shock strut lock, if used.

(8) If deflated prior to jacking, inflate nose gear shock strut with clean dry air or nitrogen in accordance with servicing placard in wheel well (Ref. 12-24-21).

(9) Remove static ground cables from main landing gear trucks.

CAUTION: BE SURE ALL ARTIFICIAL TARGETS ARE REMOVED FROM AIR/GROUND SENSORS.

(10) Remove RAT ground safety bar as required.

(11) Remove tags and close circuit breakers opened in Step 5A(7).

6. Jacking with Asymmetrical Fuel Load

A. For purposes of inspecting wing for fuel tank leaks while airplane is on jacks, the following criteria is presented for jacking an asymmetrically loaded L-1011, or for servicing fuel tanks as noted below, with airplane on jacks, with an Aircraft Weight (AW) up to 340,000 pounds (154,195 kilograms).

(1) Outboard compartment of either or both tanks No. 2L and No. 2R filled.

(2) Inboard compartment of either or both tanks No. 2L and No. 2R filled (over wing fueling only).

(3) Tank No. 1 filled.

(4) Tank No. 3 filled.

NOTE: For any of the above conditions, all other tanks must be empty.

AXLE JACKING - MAINTENANCE PRACTICES

1. General

Jacking points are provided under each landing gear axle (Ref. Fig. 201). The aircraft is raised at the axle jacking points to service the tires, wheels, and brakes, and for weighing or leveling the aircraft. Refer to Figures 201, 202, and 203 for approximate nose landing gear (NLG) and main landing gear (MLG) jack pad load limits, and heights and clearances between tires (either flat or normal).

2. Equipment and Materials

Landing Gear Downlock Safety Pins Kit, PN 1302300, no equivalent

Chocks, MLG Wheels, Brooks and Perkins, Inc., or equivalent

Nose Gear Steering Lockout Pin, PN 1302788-101 or equivalent

Service Interphones, PN TC-287/20043-1, ISC/Telephonics Corp., or equivalent

Cantilever Axle Jack (35-ton) (31,746 kg) capacity NLG, Sancor 54, Columbus Jack Corp., or equivalent

Cantilever Axle Jack (40-ton) (36,281 kg) capacity, NLG, Model 5967, Regent Jack Mfg Co., or equivalent

Cantilever Axle Jack (60-ton) (54,421 kg) capacity, MLG, Model 8398R, Regent Jack Mfg Co., or equivalent

Cantilever Axle Jack (60-ton) (54,421 kg) capacity, NLG or MLG, Model 6002-150, Columbus Jack Corp., or equivalent

Cantilever Axle Jack (60-ton) (54,421 kg) capacity, NLG or MLG, Model 6002-150, Columbus Jack Corp., or equivalent

Axle Jack (50-ton) (45,351 kg) capacity, NLG or MLG, Model 1946R, Regent Jack Mfg Co., or equivalent

Axle Jack (55-ton)(49,886 kg) capacity, NLG or MLG, Model R55.17, Hydro-Geratebau GMBH and Co. KG., or equivalent

Axle Jack (60-ton) (54,421 kg) capacity, NLG or MLG, Model 60P10, Malabar Mfg Co., or equivalent

R Jack Adapter, low clearance MLG axle, Lockheed Part No.
R 1309653-101

3. Referenced Procedures

7-11-00	Wing and Fuselage Jacking - Maintenance Practices
9-11-00	Normal Towing Conditions - Maintenance Practices
10-10-00	Parking - Maintenance Practices

4. NLG and MLG Axle Jacking - Normally Inflated Tires

A. Raising Aircraft

WARNING: DO NOT JACK AIRCRAFT AT THE TRUCKS, IF THE AIRCRAFT HAS BEEN STOPPED IN A TURN.

NOSE WHEELS MUST BE ALIGNED STRAIGHT FORWARD BEFORE JACKING.

CAUTION: DO NOT RAISE AIRCRAFT OR GEAR ASSEMBLY BY PLACING A JACK UNDER ANY PART OF THE TRUCK OTHER THAN AXLE JACK PADS.

R ON AIRCRAFT 001-006, 008-018,
R DO NOT JACK AIRCRAFT, IF GROSS WEIGHT EXCEEDS
R 432,000 POUNDS (195,952 KG).

R ON AIRCRAFT 019-024, 027,
R DO NOT JACK AIRCRAFT IF GROSS WEIGHT EXCEEDS
R 452,000 POUNDS (205,024 KG).

R ON AIRCRAFT 025-026, 028-033,
R DO NOT JACK AIRCRAFT IF GROSS WEIGHT EXCEEDS
R 468,000 POUNDS (212,281 KG).

R DO NOT EXCEED ALLOWABLE LOADS AT JACKING POINTS (REF. FIG. 201).

(1) Verify that all landing gear downlock safety pins are installed (Ref. 10-10-00, Fig. 201).

WARNING: ANY NOSE GEAR MOVEMENT TENDS TO INDUCE SIDE LOADS AND FORCE NOSE GEAR OFF JACK.

(2) If NLG is being jacked, verify that nose gear steering lockout pin is installed (Ref. 9-11-00, Fig. 202) or that steering valve control input link is disconnected. Chock main landing gear wheels or connect towbar to aircraft and stabilize with towing tractor.

WARNING: AIRCRAFT MUST BE STATICALLY GROUNDED (REF. 10-10-00, FIG. 202).

(3) Remove all unnecessary jacks, ladders, work platforms, entry stands, and other service items from area.

(4) Position jack lifting ram directly under jack pad (Ref. Fig. 204).

(5) Jack until ram engages jack pad (Ref. Fig. 202 and 203).

CAUTION: RELEASE AIRCRAFT PARKING BRAKES BEFORE JACKING.

(6) If MLG is being jacked, remove wheel chocks from truck being jacked.

CAUTION: DO NOT EXCEED ALLOWABLE CAPACITY OF JACK OR JACK PAD.

(7) If both axles of one truck are being jacked, extend both jacks simultaneously. Extend jack or jacks until tires are a minimum of 2 inches (5.08 cm) off the ground.

B. Lowering Aircraft

CAUTION: VERIFY THAT LANDING GEAR CONTROL LEVER IS IN DOWN POSITION.

(1) Verify that all landing gear downlock safety pins are installed (Ref. 10-10-00).

NOTE: If more than one axle has been jacked, all jacks must be lowered simultaneously.

(2) Lower jack or jacks at a constant rate by releasing hydraulic pressure with relief valve.

(3) Chock wheels and remove jacks to clear aircraft.

5. Nose Gear Axle Jacking - Both Tires Flat

A. Raising Nose

WARNING: NOSE WHEELS MUST BE ALIGNED STRAIGHT FORWARD BEFORE JACKING.

R CAUTION: ANY NOSE WHEEL MOVEMENT TENDS TO INDUCE SIDE LOADS
R AND FORCE NOSE WHEEL OFF JACK. DO NOT EXCEED ALLOWABLE CAPACITY OF JACKS.

(1) Verify that nose gear steering lockout pin is installed (Ref. 9-11-00, Fig. 202) or that steering valve control input link is disconnected.

(2) Verify that all landing gear downlock safety pins are installed (Ref. 10-10-00).

(3) Use cantilever type jack Regent 5967, or equivalent (Ref. Fig. 204).

NOTE: If Regent 5967, or equivalent, jack is not available, nose gear wheels can be raised at forward fuselage jack point (Ref. 7-11-00).

(4) Chock main landing gear wheels.

(5) Install jack lifting ram directly under nose gear axle jacking pad.

(6) Extend jack with handpump in accordance with instructions on jack until tires are a minimum of 1 inch (2.54 cm) off the ground.

B. Lowering Nose

CAUTION: VERIFY THAT LANDING GEAR CONTROL LEVER IS IN DOWN POSITION.

(1) Verify that all landing gear downlock safety pins are installed (Ref. 10-10-00).

(2) Lower jack at constant rate by releasing hydraulic pressure at relief valve.

(3) Chock wheels and remove jack clear of aircraft.

6. Main Gear Axle Jacking - Both Tires Flat

A. Raising Aircraft

NOTE: Jacking procedures are the same for jacking at either the forward or aft main landing gear axle jack point. Raise aircraft with minimum height jack, when both tires on same main landing gear axle are flat (Ref. Fig. 203).

(1) Verify that all landing gear downlock safety pins are installed.

(2) Chock all main landing gear wheels, except for those that are flat.

(3) Install jack lifting ram directly under jack pad of axle with flat tires.

CAUTION: BEFORE JACKING, RELEASE AIRCRAFT PARKING BRAKES.

(4) The Malabar flat tire jack (Model 946) may be used where there is a clearance of 4-1/2 inches minimum under the jack pad. If clearance is reduced to less than 4-1/2 inches under the jack pad, proceed using low clearance MLG Jack Adapter (LAC Part No. 1309653-101) as described in Paragraph B.

(5) Extend jack with handpump in accordance with instructions on jack until tires are a minimum of 2 inches (5.08 cm) off the ground.

R 8. Jacking Aircraft for Replacement of Blown Tires and Damaged Wheels.

NOTE: Landing with inoperative or faulty anti-skid system may result in main gear tire failure, wheel damage and in extreme situtations, runway contact with the brake. The low clearance MLG Axle Jack Adapter (LAC Part No. 1309653-101) may be used where the clearance below the jack pad is reduced to less than 4-1/2 inches.

(1) Preparation for Jacking

(a) Check that landing gear downlock pins are installed.

(b) Remove three (3) bolts securing hub cap to wheel and remove hub cap.

(c) Remove bolt through the axle nut. Do not remove axle nut.

(d) Assemble bearing retainer to wheel with hub cap bolts.

(e) Remove axle nut.

(f) Remove two (2) bolts securing speed sensor to adapter; pull sensor from axle and disconnect electrical connector.

(g) Remove three (3) screws securing sensor adapter to ring and remove ring.

(h) Remove sensor adapter from axle using the puller provided.

R (i) Push electrical plug and wire harness into axle.

R (j) Insert axle jack adapter gage into axle to identify proper sleeve to be used with jack adapter.

R (k) Assemble applicable sleeve to jack adapters and insert adapter into each end of axle to be jacked. Ensure that the adapters are inserted for their full length (Ref. Fig. 207)

R (2) Jacking with Axle Jack Adapters

R (a) Jack aircraft using the two (2) jacks simultaneously to height required to provide clearance for installing jack under jack pad in bogie beam. Maintain pointers on the jack adapters at the same gage number to assure jacks are equally loaded.

R CAUTION: Jacking an aircraft in excess of the weight limits stated on the gage will require an inspection of the axle as is required following a hard landing.

R (b) Install jack under bogie beam and continue jacking to height necessary for wheel replacement.

R C. Lowering Aircraft

CAUTION: VERIFY THAT LANDING GEAR CONTROL LEVER IS IN DOWN POSITION.

(1) Verify that all landing gear downlock safety pins are installed (Ref. 10-10-00).

(2) Lower jack at constant rate by releasing hydraulic pressure at relief valve.

(3) Chock wheels and remove jack clear of aircraft.

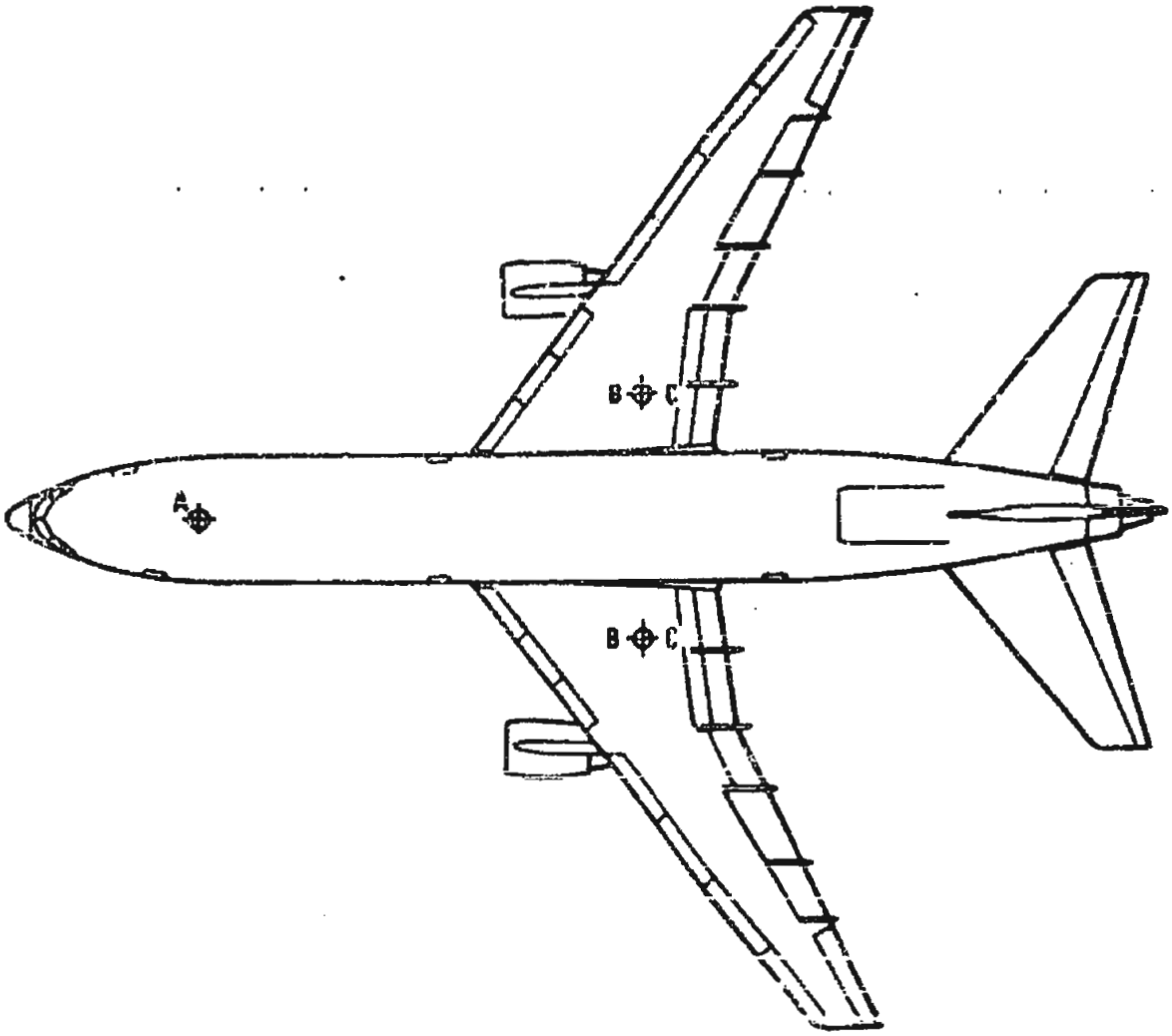
7. Use of Inclined Plane - In Lieu of Jack for Wheel Change

A. Raising Aircraft

(1) Verify that all landing gear downlock safety pins are installed (Ref. 10-10-00).

(2) Tow airplane from tow lugs on main gear so that main gear moves up an inclined ramp on good tires only (Ref. Fig. 205).

CAUTION: TOWING THE AIRPLANE UP AN INCLINED RAMP BY THE NOSE GEAR IS PROHIBITED.



NOTE

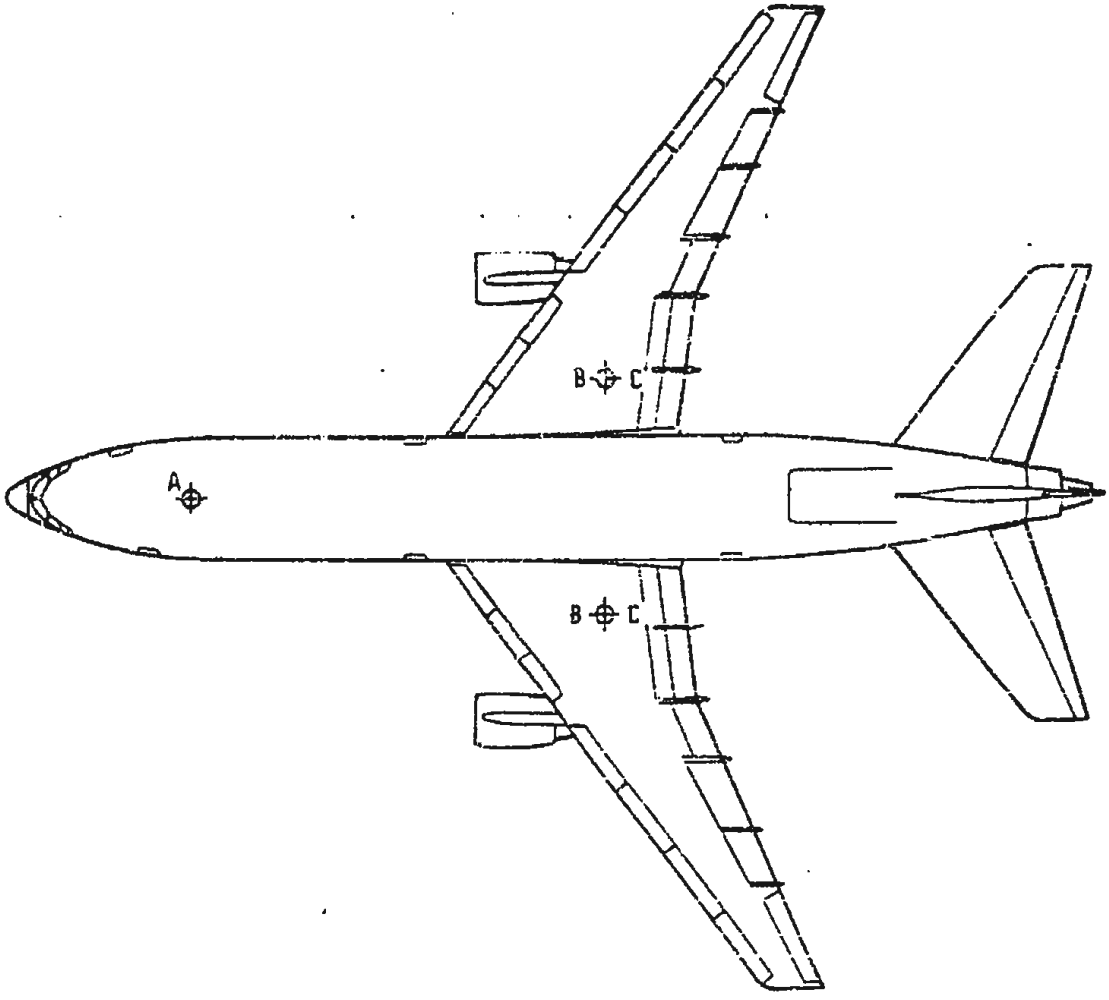
1 MAXIMUM LOAD PER JACK PAD. (A JACK PAD IS LOCATED AT EACH END OF THE TRUCK BEAM.)

LANDING GEAR

CODE	LOCATION	F.S. IN.	B.L. IN.	JACKING LOADS 432,000 (LB) GROSS WT	JACKING LOADS 195,952 (KG) GROSS WT
A	NOSE GEAR	440.0	0	47,200	21,400
B	MAIN GEAR FWD	1242.8	216.0	102,100 (1)	46,300 (1)
C	MAIN GEAR AFT	1317.2	216.0	102,100 (1)	46,300 (1)

M1-0000-07-216

Landing Gear Jacking Points and Loads
Figure 201



NOTE

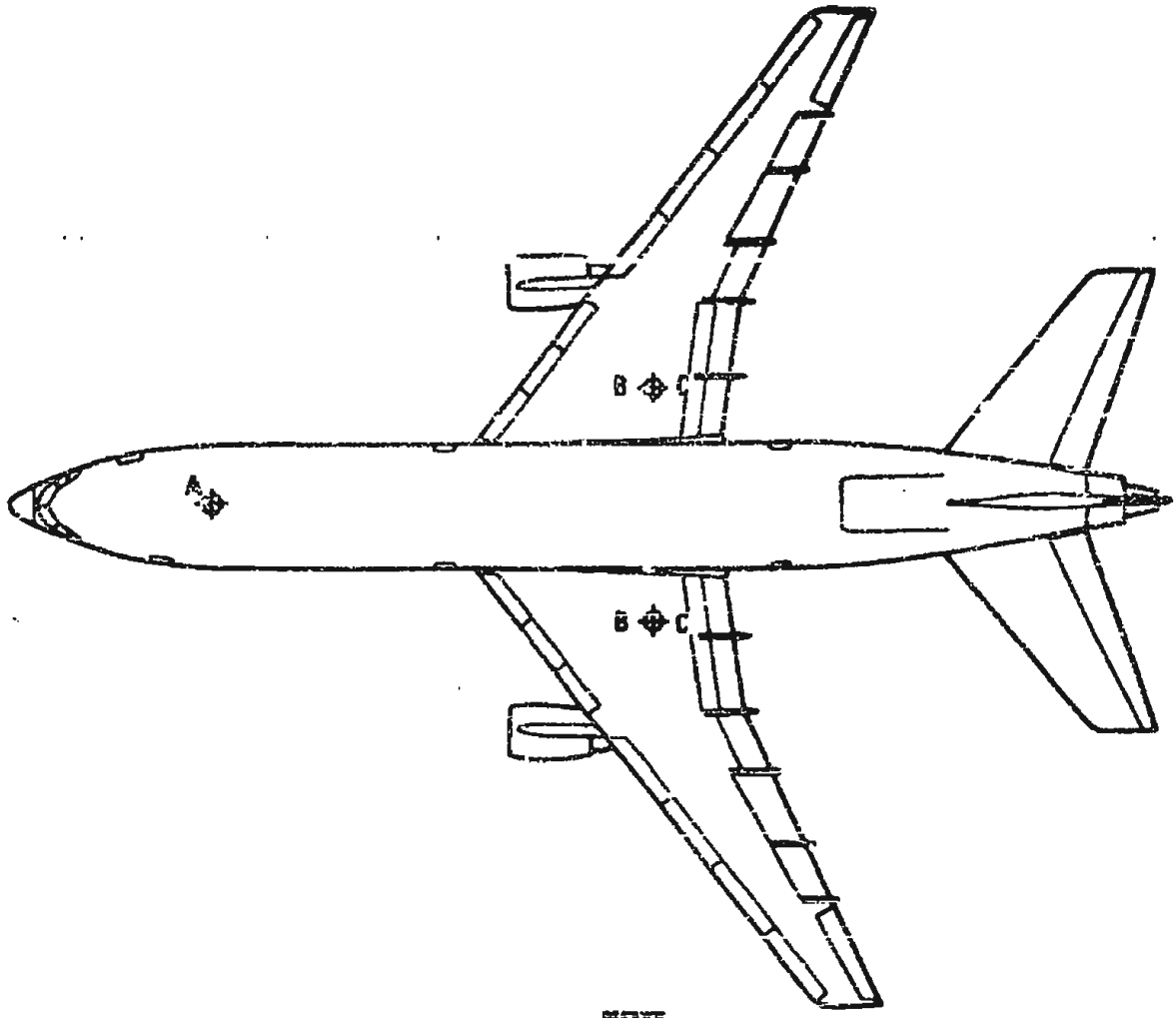
1 MAXIMUM LOAD PER JACK PAD. (A JACK PAD IS LOCATED AT EACH END OF THE TRUCK BEAM.)

LANDING GEAR

CODE	LOCATION	F.S. IN.	B.L. IN.	JACKING LOADS 452,000 (LB) GROSS WT	JACKING LOADS 205,024 (KG) GROSS WT
A	NOSE GEAR	440.0	0	55,470	25,160
B	MAIN GEAR FWD	1242.8	216.0	106,350 (1)	48,240 (1)
C	MAIN GEAR AFT	1317.2	216.0	106,350 (1)	48,240 (1)

M1-0000-07-217

R R Landing Gear Jacking Points and Loads
Figure 201



NOTE

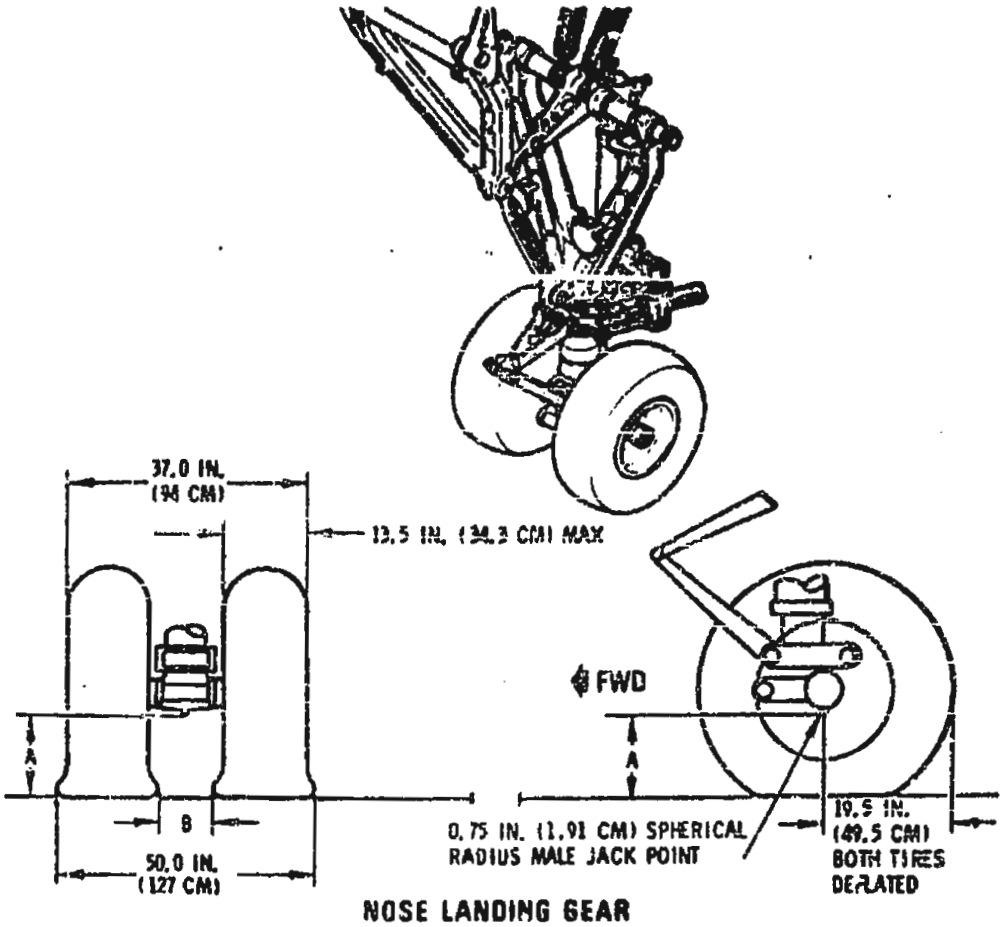
1. MAXIMUM LOAD PER JACK PAD. (A JACK PAD IS LOCATED AT EACH END OF THE TRUCK BEAM)

LANDING GEAR

CODE	LOCATION	F.S. IN.	B.L. IN.	JACKING LOADS 466,000 (LB) GROSS WT	JACKING LOADS 225,221 (KG) GROSS WT
A	NOSE GEAR	440.0	0	55,470	25,160
B	MAIN GEAR FWD	1242.0	216.0	109,520 (1)	49,680 (1)
C	MAIN GEAR AFT	1317.2	216.0	109,520 (1)	49,680 (1)

M1-0001-07-218

R R Landing Gear Jacking Points and Loads
Figure 201



NOSE LANDING GEAR

NOSE LANDING GEAR JACKING HEIGHTS AND TIRE CLEARANCES

CONDITION	36 X 11-16 TYPE VII TIRES			
	DIMENSION A		DIMENSION B	
	INCHES	CM	INCHES	CM
TIRES NORMALLY INFLATED (STATIC HEIGHT)	11.4	29.0	9.0	22.9
BOTH TIRES DEFLATED	7.6	19.3	0.0	0.0
BOTH WHEELS ON RIMS	6.1	15.5	0.0	0.0
AIRCRAFT JACKED TO HEIGHT REQUIRED FOR 2 IN. (5.1 CM) GROUND CLEARANCE FORE TIRE CHANGE	16.7	42.42	12.0	30.5

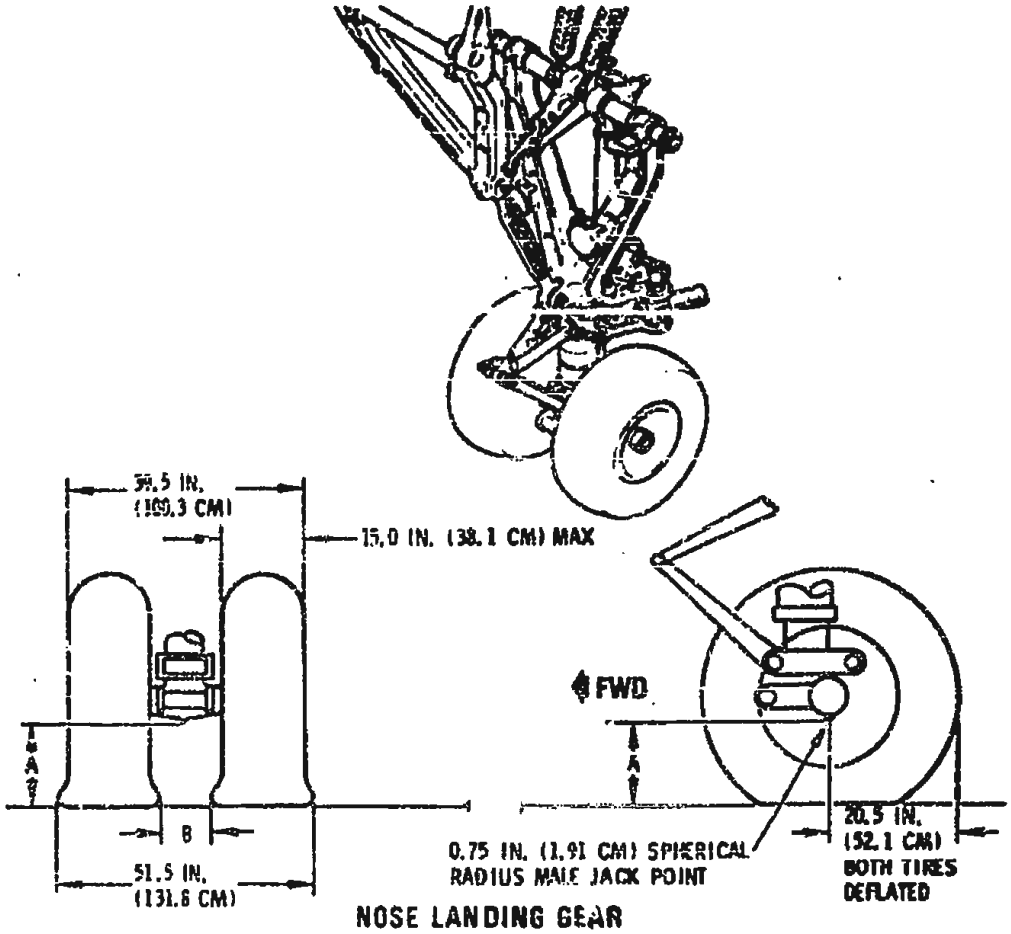
NOTE

1 THESE FIGURES ARE BASED ON MAXIMUM TAXI WEIGHT (MTW)

2 THE DIMENSIONS GIVEN ABOVE ARE APPROXIMATE AND WILL VARY WITH THE TIRE TYPE AND CONDITION

M1-54802-07-004

Nose Landing Gear Jacking Heights and Tire Clearances
Figure 202



NOSE LANDING GEAR

NOSE LANDING GEAR JACKING HEIGHTS AND TIRE CLEARANCES

CONDITION	37 X 13-16 20 OR 26 PR			
	DIMENSION A		DIMENSION B	
	INCHES	CM	INCHES	CM
TIRES NORMALLY INFLATED (STATIC HEIGHT)	12.0	30.5	8.0	20.3
BOTH TIRES DEFLATED	7.6	19.3	0.0	0.0
BOTH WHEELS ON RIMS	6.1	15.5	0.0	0.0
AIRCRAFT JACKED TO HEIGHT REQUIRED FOR 2 IN. (5.1 CM) GROUND CLEARANCE FOR TIRE CHANGE	17.7	44.9	11.5	29.2

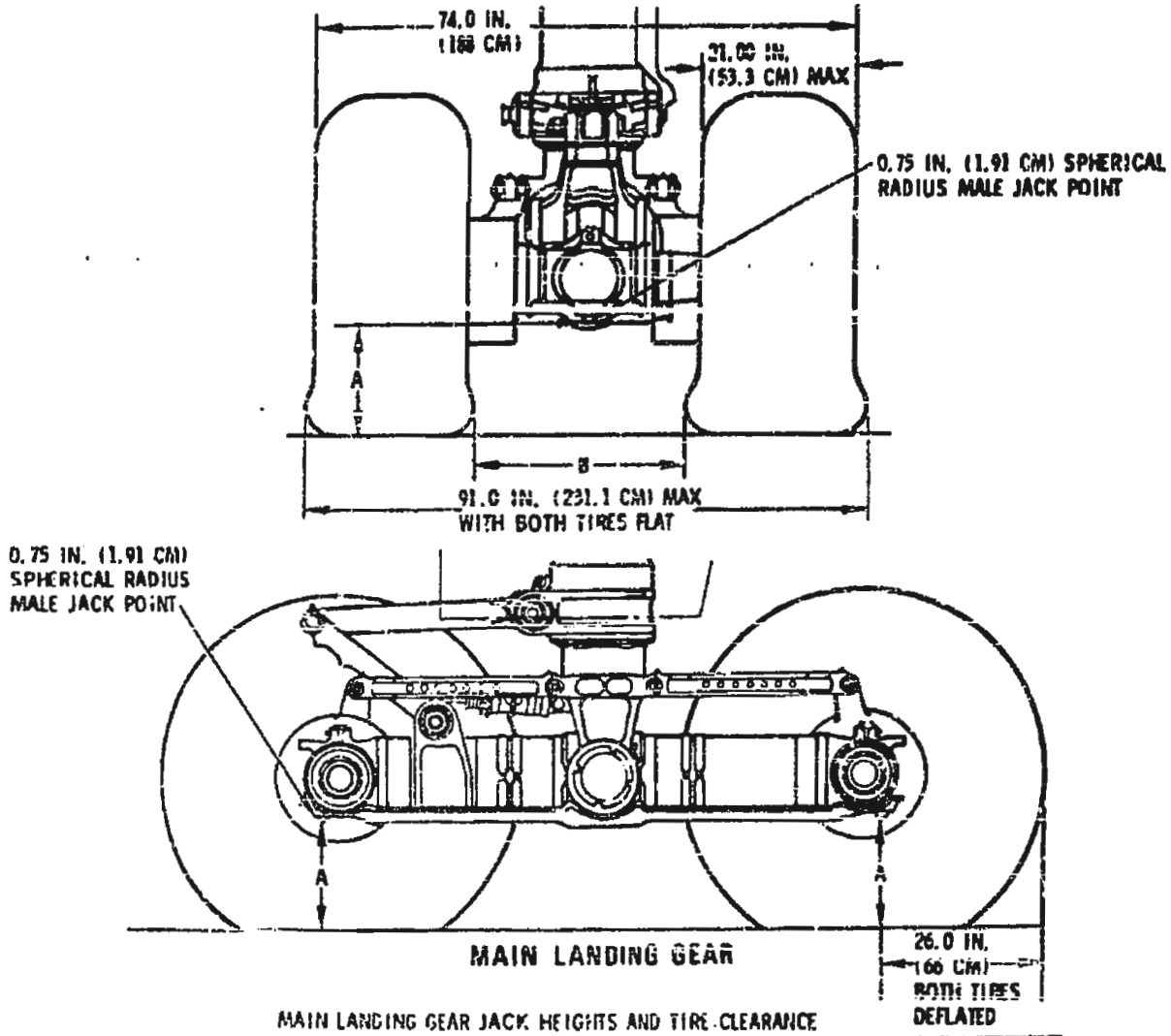
NOTE

1 THESE FIGURES ARE BASED ON MAXIMUM TAXI WEIGHT (MTW)

2 THE DIMENSIONS GIVEN ABOVE ARE APPROXIMATE AND WILL VARY WITH THE TIRE TYPE AND CONDITION

MI-0032-07-206

Nose Landing Gear Jacking Heights and Tire Clearances
Figure 202



MAIN LANDING GEAR JACK HEIGHTS AND TIRE CLEARANCE

	CONDITION	50 X 20-20 TYPE VIII TIRES			
		DIMENSION A		DIMENSION B	
		INCHES	CM	INCHES	CM
1	TIRES NORMALLY INFLATED (STATIC HEIGHT)	14.7	37.3	27.0	68.6
2	BOTH TIRES DEFLATED	8.0	20.3	13.0	33.0
3	BOTH WHEELS ON RIMS	5.8	14.7	13.0	33.0
4	AIRCRAFT JACKED TO HEIGHT REQUIRED FOR 2 IN. GROUND CLEARANCE FOR TIRE CHANGE	22.1	56.1	31.5	80.0

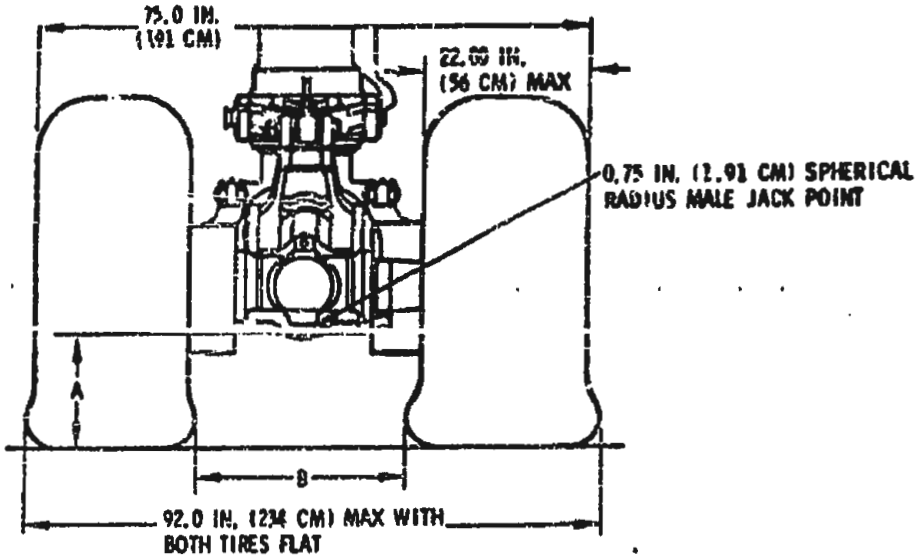
NOTE

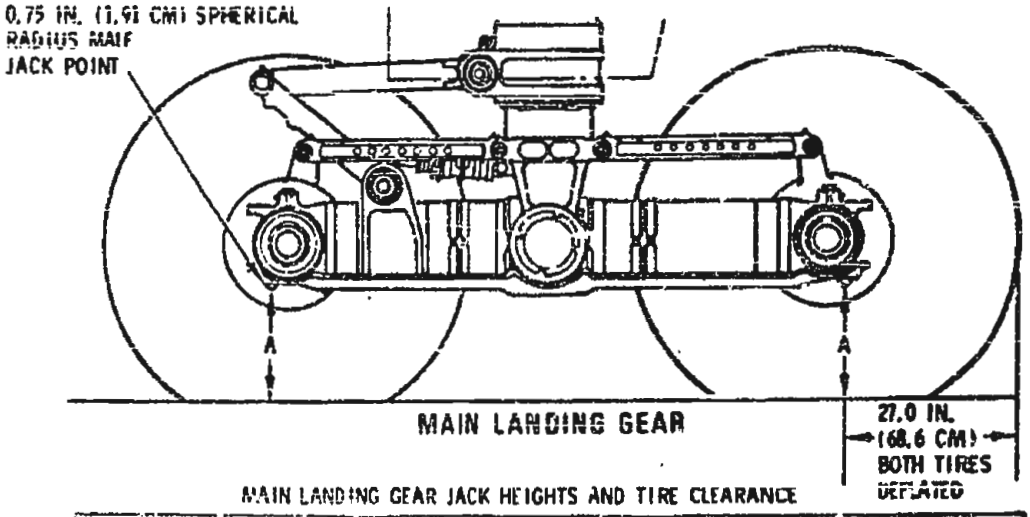
1 THESE FIGURES ARE BASED ON MAXIMUM TAXI WEIGHT (MTW)

2 THE DIMENSIONS GIVEN ABOVE ARE APPROXIMATE AND WILL VARY WITH THE TIRE TYPE AND CONDITION

M1-54802-07-003

Main Landing Gear Jacking Heights and Tire Clearances
Figure 203





MAIN LANDING GEAR JACK HEIGHTS AND TIRE CLEARANCE

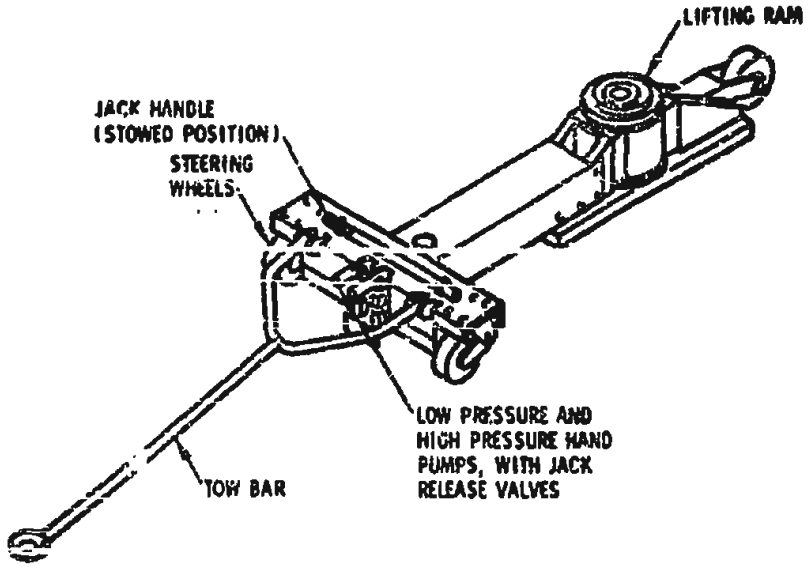
	CONDITION	52 X 20.5-20, 34 PR			
		DIMENSION A		DIMENSION B	
		INCHES	CM	INCHES	CM
1	TIRES NORMALLY INFLATED (STATIC HEIGHT)	15.4	39.0	26.0	66
2	BOTH TIRES DEFLATED	8.0	20.3	13.0	33
3	BOTH WHEELS ON RIMS	5.8	14.7	13.0	33
4	AIRCRAFT JACKED TO HEIGHT REQUIRED FOR 2 IN. GROUND CLEARANCE FOR TIRE CHANGE	23.1	58.7	31.0	79

NOTE

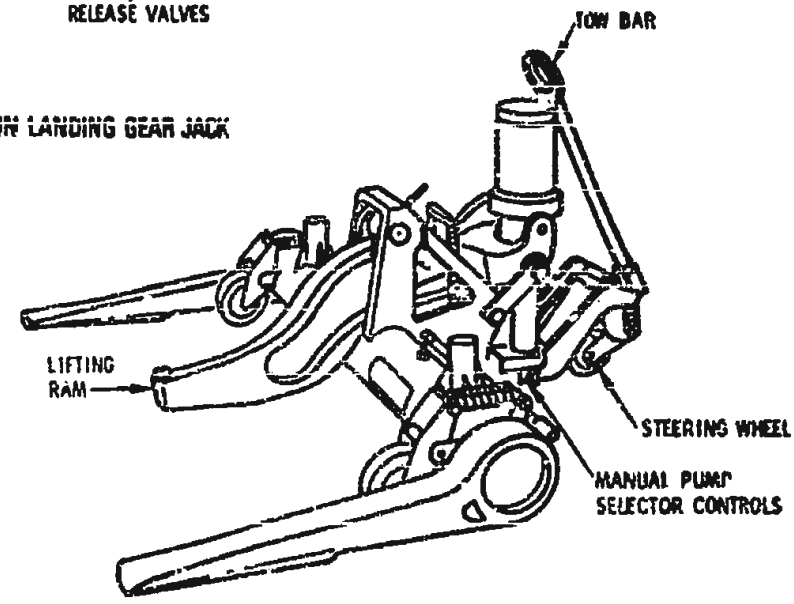
1 THESE FIGURES ARE BASED ON MAXIMUM TAXI WEIGHT (MTW)

2 THE DIMENSIONS GIVEN ABOVE ARE APPROXIMATE AND WILL VARY WITH THE TIRE TYPE AND CONDITION

Main Landing Gear Jacking Heights and Tire Clearances
Figure 203


LIFTING RAM
JACK HANDLE (STOWED POSITION)
STEERING WHEELS
LOW PRESSURE AND HIGH PRESSURE HAND PUMPS, WITH JACK RELEASE VALVES
TOW BAR

△1 NOSE AND MAIN LANDING GEAR JACK



△2 CANTILEVER AXLE JACK
REGENT 5967 SHOWN

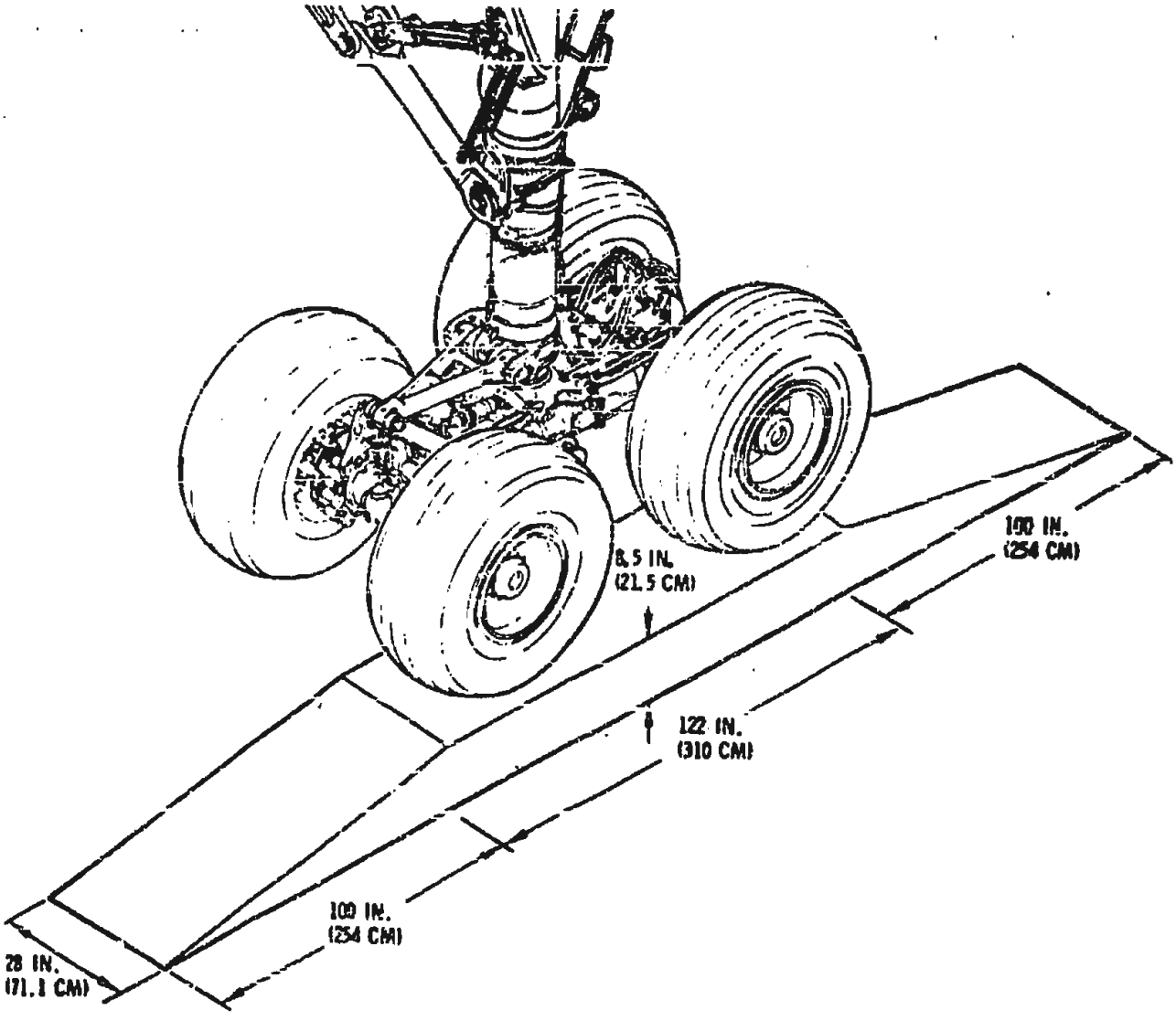
NOTE

△1 REGENT MODEL 1946R, MLG AND NLG
MALABAR MODEL 60P10, MLG AND NLG
HYDRO-GERATEBAU MODEL R5617, MLG AND NLG

△2 REGENT MODEL 5967, NLG
REGENT MODEL 2396R, MLG
COLUMBUS MODEL SANCOR 34, NLG
COLUMBUS MODEL 6002-150, MLG AND NLG

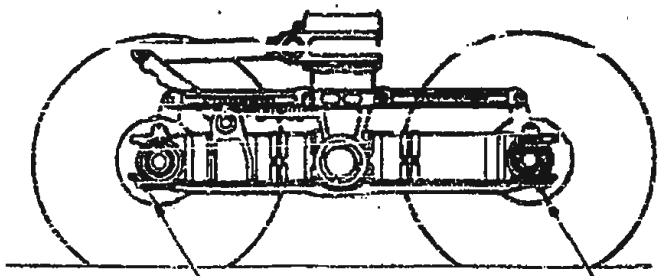
M1-0101-07-014

Landing Gear Axle Jacks
Figure 204

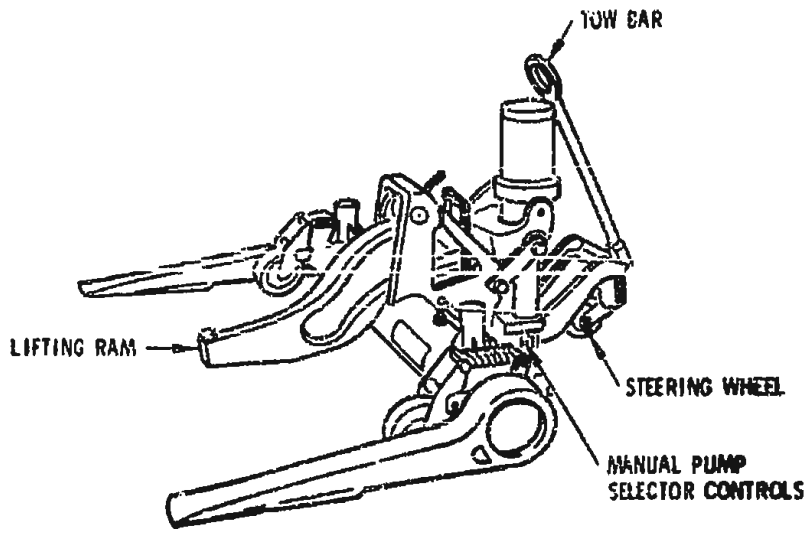


MI-0101-07-016

Inclined Ramp
Figure 205



VIEW LOOKING INBOARD

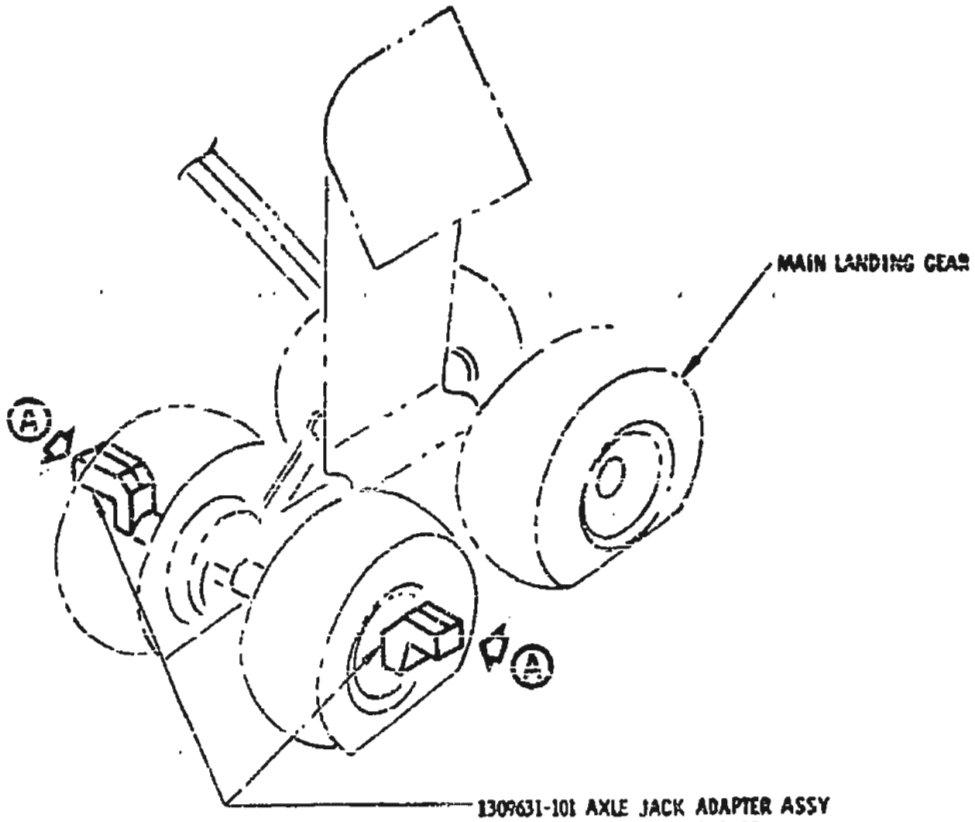


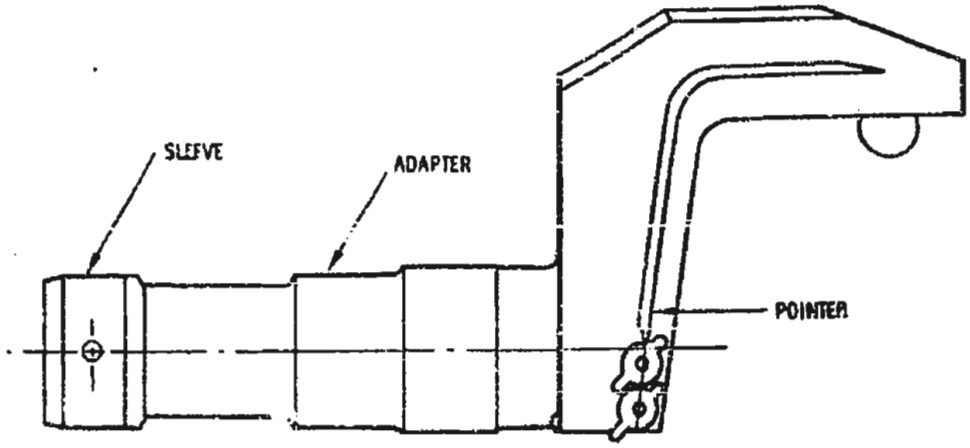
CANTILEVER AXLE JACK
REGENT 5967 SHOWN

MP 0001-07-019

R Main Landing Gear Jacking Points
R Figure 206

R EFFECTIVITY: ALL
R
001B





(A)

M1-0000-07-909

R
R

Low Clearance Jack Adapter
Figure 207

EFFECTIVITY: ALL

001B

TOWING AND WINCHING

1. Referenced Procedures

5-50-09 Lateral Imbalance - Inspection and Check

2. Maintenance Practices

A. Lateral Imbalance Towing Conditions and Limits

Typical aircraft configurations and load distribution combinations for which towing can be accomplished without exceeding lateral balance limitations are shown in Figure 201.

R Conditions other than those shown in Figure 201 should be evaluated by the cognizant engineering department to determine proper procedures that will ensure compliance with lateral balance limitations. If safe procedures have not been followed, an inspection and check should be made in accordance with Time Limits/Maintenance Checks (Ref. 5-50-09).

FUEL DISTRIBUTION → / ↓ AIRCRAFT CONFIGURATION	55,000 LB (24,940 KG) OF FUEL. ANY SINGLE TANK (1, 3, 2L, 2R) FILLED, WITH REMAINDER IN OPPOSITE WING	108,400 LB (47,800 KG) 133,900 LB (60,725 KG) OF FUEL. ANY SINGLE TANK (1, 3, 2L, 2R) EMPTY REMAINING TANKS FUEL.	135,000 LB (70,295 KG) OF FUEL. ASYMMETRICAL FUEL 4000 LB (1,814 KG) MAXIMUM	159,560 LB (72,363 KG) FUEL (FULL) NO ASYMMETRICAL FUEL
WING ENGINES AND CONTROL SURFACES INSTALLED	TOWING PERMITTED FOR AIRCRAFT WEIGHT 339,000 LB (153,769 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT 339,000 LB (153,769 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 427,000 LB (193,650 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 432,000 LB (195,918 KG) OR LESS
WING ENGINES INSTALLED. OUTBOARD CONTROL SURFACES OFF ON LIGHT WING.	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 330,000 LB (149,660 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 330,000 LB (149,660 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 419,000 LB (190,023 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 432,000 LB (195,918 KG) OR LESS
ONE WING ENGINE OFF. ALL WING CONTROL SURFACES ON.	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 242,000 LB TO 293,000 LB	TOWING NOT PERMITTED	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 378,000 LB OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 405,000 LB (184,127 KG) OR LESS
ONE ENGINE OFF. OUTBOARD CONTROL SURFACES OFF ON LIGHT WING.	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 254,000 LB (115,193 KG) TO 284,000 LB (128,798 KG)	TOWING NOT PERMITTED	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 371,000 LB (168,254 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 397,000 LB (180,045 KG) OR LESS

NOTE

1. TO DETERMINE AIRCRAFT WEIGHT WITH APPLICABLE COMPONENTS REMOVED, THE FOLLOWING WEIGHTS ARE PRESENTED:

SLATS, NO. 5, 6, 7,	609 LB (275 KG) TOTAL (APPROX)
SPOILERS, NO. 3, 4, 5, 6,	121 LB (55 KG) TOTAL (APPROX)
OUTBOARD FLAPS, NO. 1, 2,	654 LB (295 KG) TOTAL (APPROX)
OUTBOARD AILERON	156 LB (71 KG) (APPROX)
WING ENGINE	13,500 LB (6120 KG) (APPROX)

2. ASYMMETRICAL FUEL IS DIFFERENCE IN LEFT WING FUEL AND RIGHT WING FUEL.

M1-0101-05-012

R R Lateral Imbalance Towing Condition and Limits
Figure 201

FUEL DISTRIBUTION → / ↓ AIRCRAFT CONFIGURATION	55,000 LB (24,943 KG) OF FUEL. ANY SINGLE TANK (1, 3, 2L, 2R) FILLED, WITH REMAINDER IN OPPOSITE WING	105,270 LB (47,750 KG) 133,590 LB (60,595 KG) OF FUEL. ANY SINGLE TANK (1, 3, 2L, 2R) EMPTY REMAINING TANKS FULL.	155,000 LB (70,306 KG) OF FUEL. ASYMMETRICAL FUEL 4000 LB (1,814 KG) MAXIMUM	199,240 LB (72,230 KG) FUEL (FULL) NO ASYMMETRICAL FUEL
WING ENGINES AND CONTROL SURFACES INSTALLED	TOWING PERMITTED FOR AIRCRAFT WEIGHT 389,000 LB (176,447 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT 368,000 LB (166,922 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 468,000 LB (212,281 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 468,000 LB (212,281 KG) OR LESS
WING ENGINES INSTALLED, OUTBOARD CONTROL SURFACES OFF ON LIGHT WING.	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 360,000 LB (172,365 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 355,000 LB (162,386 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 465,000 LB (210,920 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 468,000 LB (212,281 KG) OR LESS
ONE WING ENGINE OFF, ALL WING CONTROL SURFACES ON.	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 217,000 LB TO 336,000 LB	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 246,000 LB TO 314,000 LB	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 421,000 LB OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 439,000 LB (199,127 KG) OR LESS
ONE ENGINE OFF, OUTBOARD CONTROL SURFACES OFF ON LIGHT WING.	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 229,000 LB (103,873 KG) TO 326,000 LB (147,871 KG)	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 259,000 LB (117,480 KG) TO 305,000 LB (138,346 KG)	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 412,000 LB (186,880 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 430,000 LB (195,045 KG) OR LESS

NOTE

1. TO DETERMINE AIRCRAFT WEIGHT WITH APPLICABLE COMPONENTS REMOVED, THE FOLLOWING WEIGHTS ARE PRESENTED:

SLATS, NO. 5, 6, 7,	609 LB (276 KG) TOTAL (APPROX)
SPOILERS, NO. 3, 4, 5, 6,	121 LB (55 KG) TOTAL (APPROX)
OUTBOARD FLAPS, NO. 1, 2,	654 LB (297 KG) TOTAL (APPROX)
OUTBOARD AILERON	156 LB (71 KG) (APPROX)
WING ENGINE	14,200 LB (6441 KG) (APPROX)

2. ASYMMETRICAL FUEL IS DIFFERENCE IN LEFT WING FUEL AND RIGHT WING FUEL.

M1-0000-09-027

R R Lateral Imbalance Towing Condition and Limits
Figure 205

R R 0018 EFFECTIVITY: 028, 029

FUEL DISTRIBUTION → / AIRCRAFT CONFIGURATION ↓	55,000 LB (24,964 KG) OF FUEL. ANY SINGLE TANK (1, 3, 2L, 2R) FILLED, WITH REMAINDER IN OPPOSITE WING	105,270 LB (47,790 KG) 133,590 LB (60,595 KG) OF FUEL. ANY SINGLE TANK (1, 3, 2L, 2R) EMPTY REMAINING TANKS FULL.	155,000 LB (70,306 KG) OF FUEL. ASYMMETRICAL FUEL 4000 LB (1,814 KG) MAXIMUM	159,240 LB (72,230 KG) FUEL (FULL) NO ASYMMETRICAL FUEL
WING ENGINES AND CONTROL SURFACES INSTALLED	TOWING PERMITTED FOR AIRCRAFT WEIGHT 389,000 LB (176,447 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT 368,000 LB (166,922 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 468,000 LB (212,281 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 468,000 LB (212,281 KG) OR LESS
WING ENGINES INSTALLED, OUTBOARD CONTROL SURFACES OFF ON LIGHT WING.	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 380,000 LB (172,365 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 358,000 LB (162,386 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 465,000 LB (210,920 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 468,000 LB (212,281 KG) OR LESS
ONE WING ENGINE OFF, ALL WING CONTROL SURFACES ON.	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 213,000 LB TO 338,000 LB	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 242,000 LB TO 317,000 LB	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 424,000 LB OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 442,000 LB (200,488 KG) OR LESS
ONE ENGINE OFF, OUTBOARD CONTROL SURFACES OFF ON LIGHT WING.	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 225,000 LB (102,058 KG) TO 329,000 LB (149,232 KG)	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 255,000 LB (115,666 KG) TO 308,000 LB (139,706 KG)	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 415,000 LB (188,241 KG) OR LESS	TOWING PERMITTED FOR AIRCRAFT WEIGHT OF 433,000 LB (196,405 KG) OR LESS

NOTE

1. TO DETERMINE AIRCRAFT WEIGHT WITH APPLICABLE COMPONENTS REMOVED, THE FOLLOWING WEIGHTS ARE PRESENTED:

SLATS, NO. 5, 6, 7,	609 LB (276 KG) TOTAL (APPROX)
SPOILERS, NO. 3, 4, 5, 6,	121 LB (55 KG) TOTAL (APPROX)
OUTBOARD FLAPS, NO. 1, 2,	654 LB (297 KG) TOTAL (APPROX)
OUTBOARD AILERON	156 LB (71 KG) (APPROX)
WING ENGINE	13,430 LB (6092 KG) (APPROX)

2. ASYMMETRICAL FUEL IS DIFFERENCE IN LEFT WING FUEL AND RIGHT WING FUEL.

M1-0000-09-028

R R Lateral Imbalance Conditions and Limits
Figure 201